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	s.	d.
Trouble in laying haulm, &c. woman and boy half a day each.....	1	0
Removing do. four different times, one quarter of a day each time.....	2	0
Lime.....	1	0
Total expense.....	4	0

Thus for 4*s. per* acre they may be totally destroyed, however numerous. I can vouch for the statement being correct, having practised it to an extent this winter, and strongly recommend it to the Horticultural Society.

An Account of Improvements made in Gas Lights. By Messrs. Sobolewsky and Horrer, at Petersburgh.

(From the Annales des Arts, &c.)

The object of the experiments made by the authors was to see what kind of light could be produced by the combustion of wood in closed vessels, and by reducing it to charcoal.

The greatest difficulty consists in getting rid of the vapour that exhales from the gas, and in giving brilliancy and purity to the flame; for in all the trials made in Russia, and in other countries, the flame has always been feeble and blueish, but little luminous, and accompanied by a mephitic exhalation.

After many unsatisfactory attempts, Messrs. Sobolewsky and Horrer have at length completely succeeded, and can be certain of producing light by the gas that will be very bright, without any sensible odour or fuliginous exhalation. These facts being established, only the method of separating the gas remains to be described; and to shew the utility of this new method of producing light. A stove, of a particular construction, receives a cylinder of cast iron, which is filled with wood or chips, and which is afterwards hermetically closed in the part that receives the wood. Then the cylinder is heated as much as possible. By this extreme external heat the pure wood is decomposed, and becomes charcoal; and its other constituent parts, such as the acid, the hydrogen, and the carbon, are disengaged, and form, from the commencement of the operation, empyreumatic oil and acid, that is to say tar. Afterwards, in proportion as the heat augments, these substances, combining with the igniting principle or heat, produce carbonic acid and inflammable hydrogen gas. All these parts, that are disengaged from the wood, pass out of the cylinder into a refrigerator, which is adapted to it. Here they cool, the empyreumatic oil and acid resolve into drops, and fall into the recipient. From thence the gas is conducted into water, in order to wash it; after which it is collected in a large reservoir, where it is ready for use.

Between this reservoir and lamps that are placed in apartments or open courts, a communication is established, by means of pipes of different sizes, which conduct the gas towards the lamps, as it is required, and which for this purpose are furnished with cocks. By opening a cock, and applying a lighted paper or candle to it, the gas inflames, and continues to burn at the orifice of the tube until it is entirely exhausted Thus it may be employed to give light, either as actual fuel, or as a means of giving heat.

The heat of the cylinder is continued until the gas be entirely separated. This separation, when effected, demonstrates that the wood is totally reduced to charcoal; the cylinder is then suffered to cool, and the charcoal is taken out. If a fresh supply of gas be required, the cylinder is again filled with wood, and heated. This operation terminated, excellent charcoal results from it, besides a considerable quantity of acid and tar. The acid is known by the name of pyroligneous acid, and only differs from common vinegar because it is mixed with tar. When, by means of a chemical process, the acid and tar are separated, a perfect vinegar remains, which may be used for the same purposes as other ordinary vinegar. The empyreumatic oil that is separated in this operation is complete tar, and is proper to be used as such for every purpose.

A cubic cord of wood, equal to 2.133 French metres, reduced to charcoal by the process above described, produces 255 pounds, Paris weight, of the best charcoal; 70 buckets of acid of 20 *pouds*, produce 30 pounds, *poids de marc*, of tar. After the acid is properly purified, there remains 50 buckets of good vinegar.

The quantity of wood necessary for a stove that will heat a small cast iron cylinder, of a size to contain one-fortieth of a cubic cord, is nearly equal to the quantity that the cylinder receives; but in proportion as the dimensions of the cylinder are increased, the quantity of wood necessary to heat it externally diminishes greatly; so that for a cylinder which contains

a cubic cord, a stove for a fifth of that quantity will suffice, and cylinders large enough for more than three times that quantity require to heat them externally not more than an eighth part of the mass of wood contained in the cylinder.

This account already shows some of the advantages resulting from this method of reducing wood to charcoal; and if we add, that from a single cubic cord 50,000 cube feet of gas can be extracted, and that this quantity is sufficient to feed 4000 lamps for five hours, the result will appear beyond all belief.

Independently of all these advantages, this method of affording light, may also contribute to warm apartments; so that the wood employed to heat the cylinder will also warm rooms. It is evident that for this purpose the stove must be constructed differently from that just described, and that it must vary according to circumstances.

To so many united advantages is also to be added, that these lamps require no attention, for when they are once lighted, the flame continues until the gas is exhausted. Another important observation is, that no other mode of lighting is so free from danger, for the inflammable gas emits no sparks, and the lamps cannot be removed from one place to another, which are two of the most common causes of accidents by fire.

No method of lighting can be employed more advantageously in large establishments, and especially in manufactories where light is a continual and great expense, since the proposed method supplies, instead of that expense, a certain and important income.

LIST OF NEW PUBLICATIONS.

BIOGRAPHY.

A BIOGRAPHICAL List of the House of Commons, corrected to March 1st, 5s

Memoir of Captain Paul Cuffee, a man of colour, 6d.

CHEMISTRY.

An Account of the most important recent Discoveries and Improvements in Chemistry and Mineralogy, to the present Time; being an Appendix to their Dictionary of Chemistry and Mineralogy; by A. and C. R. Aikin, 18s.

COMMERCE.

The Merchant and Ship-Master's Assistant; or, an Account of the Monies, Exchanges, Weights, and Measures, of the principal commercial places, 10s. 6d.

DRAMA.

The Death of Darnley, Ivan, Zamorin and Zama, The Confession; Orestes; Five Tragedies, by Wm. Sotheby, Esq.

Kathleen O'Neil; a National Melo-Drame, in Three Acts; as performed at the Belfast Theatre, 1s. *Belfast printed.*

EDUCATION.

The Academical Gazette, a School Newspaper, containing Select News, School Advertisements, &c. &c. No. 1, 9½d.

Exercises on the Etymology, Syntax, Idioms, and Synonyms of the Spanish Language, by L. J. A. M'Henry, 4s.

The Arithmetical Preceptor; in five Parts; by Joseph Youle, 5s.

The Same, in Six Parts; to which is added, a Treatise on Magic Squares; by Joseph Youle, 8s.

Elements of Tuition, Part 2nd; The English School; or, the History, Analysis, and Application of the Madras System of Education to English Schools; by the Rev. Andrew Bell, L L. & D.D. 12s.

HISTORY AND CHRONOLOGY.

Compendium of the History of Ireland; by John Lawless, Esq., 10s. *Dublin printed.*

A new Analysis of Chronology; in which an attempt is made to explain the History and Antiquities of the Primitive Nations of the World, and the Prophecies relating to them, on Principles tending to remove the Imperfection and Discordance of Preceding Systems; by the Rev. William Hales, D.D. £.8 8s.

An Abridgment of Universal History, in Sixteen Parts; by the Rev. E. W. Whitaker, 8s. each Part.

MEDICINE AND SURGERY.

An Inquiry into the Probability and Rationality of Mr. Hunter's Theory of Life; by John Abernethy, F.R.S. &c. 4s. 6d. bds.

An Essay on Medical Economy, 8s. 6d.

MISCELLANIES.

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